

## Research Article

# Policy and Regulatory Challenges Posed by Emerging Pricing Strategies

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### Abstract

*At the beginning of 2014, in some African countries mobile operators were offering bundles of voice, SMS, and data services. This emerged by applying the OECD (Organisation for Economic Co-operation and Development) 2010 price baskets methodology, which was used to analyze and compare prices in different countries and among operators and to develop a case study on South African mobile prepaid prices. This article discusses how mobile operators introduced new pricing strategies both to reduce churn rate and to challenge loss in voice and SMS revenues eroded by the use of Internet Protocol (IP) services. Although voice and SMS revenues were still the primary revenue streams for mobile operators, they decreased in 2013, while data and equipment revenues comprised an increasing share of revenue. Considering the complex structure of emerging bundle tariffs, the article recommends that national regulatory agencies request operators' disaggregated data on average revenue per user, minutes of use, and data traffic on their services to develop new price baskets based on the real use of mobile prepaid services.*

### Introduction

As competition in the mobile market increases, mobile operators are developing new pricing strategies both to reduce churn by locking in users who might decide to migrate to cheaper operators and to stop the erosion of voice and SMS revenues by an increasing use of voice over IP (VoIP) as well as instant messaging platforms. These new pricing strategies include dynamic tariffs, one-to-one pricing, private pricing, time-based pricing, and integrated bundles of voice, SMS, and data services.

Mobile operators have had to adapt to the growing use of Internet-capable phones, which have stimulated demand for cheap data options in substitution for their relatively expensive voice and SMS options.

In the quarterly review of prepaid mobile voice tariffs in 40 countries conducted at the end of March 2014, Research ICT Africa (RIA) found that mobile network operators were moving toward bundled prepaid packages that were being offered in Angola, Cameroon, Egypt, Tanzania, Namibia, Uganda, Ethiopia, and South Africa.

Briefly, the bundles are set at a particular value and the customer gets a number of minutes for voice calls—on-net, off-net<sup>1</sup>, or both, a number of SMSs, and an allocation of data. The bundle may consist of all three services (i.e., voice, SMS, and data) or may be only for voice calls at specified times, on-net or off-net. The bundle validity varies, with some expiring by midnight of the same day a user acquires it, and others valued for 24 hours, weekly, or monthly.

The new bundling approach makes it difficult to monitor changes in mobile tariffs. With bundled services, determining the cheapest voice or data tariff becomes complex. To assess the impact of new mobile pricing strategies on end-user prices in this dynamic environment, this research article identifies methodological

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1. On-net applies when a call or message is made on the same network; conversely, off-net applies when a call or message is made on a different network.

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problems related to the calculation of mobile prepaid voice baskets and data gaps in mobile operators' financial reports. The article reviews the literature on bundle pricing strategies. Subsequently, to monitor prices and, if necessary, regulate tariffs, the article recommends what data should be included in a price basket that would take into account these new special tariffs. It does so by applying a modified version of the OECD (Organisation for Economic Co-operation and Development) 2010 price baskets methodology to calculate price baskets and to analyze and compare prices in several countries. Emerging pricing strategies have been analyzed in all African countries that have introduced bundled prices.

The OECD (2010) price baskets methodology is based on 40 calls and 60 SMSs that have been distributed among on-net, off-net, peak, off-peak, and off-off-peak calls and SMSs. Unlike the OECD price baskets, which only examine prices of dominant operators in each market, RIA collects advertised tariffs from all mobile operators' websites. The transparency index used in this article is based on this methodology. Specifically, the RIA Pricing Transparency Index (RIA, 2013) compares prices across operators and countries. The Index is constructed by taking the cheapest OECD basket by the dominant operator and the cheapest product in a country. By using this methodology, it is possible to benchmark countries and operators. Applied consistently, it allows consumers to compare the products of a single operator and between operators.

South Africa is used as a case study to rigorously assess the impact of regulatory interventions such as introducing the reduction of the mobile termination rate (MTR)<sup>2</sup> on mobile prepaid tariffs. In addition, an analysis of publicly available<sup>3</sup> financial data from South African mobile operators has also been used, providing supply-side financial data. Finally, the article provides policy recommendations on ways to improve mobile price transparency.

### New Mobile Pricing Strategies

Previous studies on the assessment of mobile tariffs and the use of price baskets for tariff comparisons included policy briefs compiled by RIA (2013, 2014b), which have stimulated policy debates on the high communication prices in Africa. To reduce the complexity of the Indonesian prepaid mobile price structure, Rohman and Stork (2013) developed a new basket that takes into account time-of-day discounts and accumulated discounts that could not be assessed using the OECD baskets. Other studies focusing on pricing strategies assert that as the competition in the mobile industry increases, pricing strategies are developed on users' profiles (Boergermann, Lackes, & Society, 2009). The article seeks to answer the following research questions: What is the impact of new mobile pricing strategies on end-user prices in a converging environment? What are the methodological problems related to the calculation of mobile prepaid voice and data baskets?

The following paragraphs explore in detail bundled pricing strategies.

#### ***Bundled Pricing Strategy***

To retain customers, compensate for the erosion of traditional revenues by IP-based services (such as VoIP and instant messaging) and as a late-entrant strategy to attract customers, mobile operators need to provide reliable, affordable services in terms of data, while concurrently maintaining their traditional voice and SMS services.

Pricing models in mature, effectively regulated markets focus on fixed-line services and mobile contract offerings. Literature on bundling in these markets assesses how the new pricing strategies slowed the fixed<sup>4</sup>-to-mobile substitution. Conversely, households use mobile and fixed services in a complementary way, bundles are launched to simplify itemized billing, and bundling is offered as a triple-play service by cable operators and telephone companies (Grzybowski, 2014; Grzybowski & Ling, 2015; Le Blanc, 2001; Prince, 2012). However, the African market presents a different case where bundling is taking place in the mobile prepaid market with a focus on mobile services.

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2. Termination rates are charges which one telecommunications operator charges to another for terminating calls on its network.

3. In South Africa, only operators listed on the Johannesburg Stock Exchange are asked to publish their financial reports. These operators are MTN SA, Vodacom SA, and Telkom SA.

4. Fixed = landline.

Offering two or more different products as a single package is known as *bundling* (Heatley & Howell, 2009; Le Blanc, 2001). Bundling products works on the assumption that when customers are offered a choice of a single product versus two bundled products, they will purchase the bundled products as long as they perceive they will gain more value than if they buy only one product. An example of bundling by mobile network operators is selling discounted handsets paired with a service account. Discounted handsets are offered with a contractual account to subscribe to a particular service for a minimum period of time (Heatley & Howell, 2009; Papandrea, Stoeckl, & Daly, 2001). Bundling of certain services may be seen as providing a service that is not yet in demand, but is assumed will be in demand in future. In this instance, customers may use a new data service that is part of the bundle on the assumption that it is free (Heatley & Howell, 2009; Shapiro & Varian, 1998; in Constantiou & Damsgaard, 2004). Subsequently, promoting data stimulates demand for this service and pushes new users into the data market. The customer perceives the goods offered in a mixed bundle to have a higher value than purchasing each product separately (Heatley & Howell, 2009). More recently, African operators have launched a variety of sophisticated bundle plans, which not only bundle different services, but also offer different levels of free access to specific websites or apps. According to the Alliance for Affordable Internet (2015), it is possible to group bundled tariffs into four types of service plans based on what users pay for: (1) full-cost data bundle, wherein a user pays for a specific amount of data to be used to access any website; (2) service-specific data bundle, wherein the data bundle purchased allows the user to use specific apps and access certain sites for a certain period; (3) earned data, wherein a user receives data in exchange for performing some action, such as completing surveys; and (4) zero-rated data, wherein the data used to access specific sites or apps does not count toward the customer surveys.

Bundling strategies in the Northern markets—United States and Europe—were introduced in response to consumer demand for simplicity in pricing. The U.S. markets offered a flat rate for Internet use, which seemed to stimulate and push Internet use (Le Blanc, 2001). In a study on bundling practices in the Australian telecommunications sector, operators provided packages that exploited the customer's need for a single bill and offered bundled products in different fixed and mobile markets. The plans were perceived as complex and difficult to evaluate as they had varying options on call rates, subscriptions, and other uses (Papandrea et al., 2001). Late entrants may also introduce bundling to increase their market strength (Constantiou & Damsgaard, 2004). Bundling's effect on customers depends on a number of factors such as what makes up the bundle, correlation to the value the consumers place on the products in the bundle, and the availability of information to evaluate the bundles, among others. Pricing also determines the impact on the choice of different bundles, given the price sensitivity of customers in the prepaid segment.

With respect to the African market, the purpose of bundle-based strategies appears to be to retain customers on one network by tying them down with one good-value product or good-value bundle and to prevent them from using multiple network providers to obtain the best of voice, SMS, or data packages. Bundles are flat priced<sup>5</sup> for a mix of a certain number of minutes for voice calls (on-net, off-net, or both), a number of SMSs, and a (normally) capped volume of data. Alternatively, bundles can be added to any mobile voice tariff. When the bundle runs out, users have the option to renew or to carry on using mobile services outside of bundle rates. In the first quarter (Q1) of 2014, bundles were found in eight African countries on prepaid packages, as listed in Table 1.

All the bundles come with offers on voice, plus SMS or data or both. The bundles most frequently offered include voice, SMS, and data services, followed by voice and SMS bundles. When calculating mobile voice prepaid price baskets based on the OECD (2010) 40 calls/60 SMSs, RIA has observed that most new bundles are more expensive than the cheapest prepaid voice product in the country. At the time of research, for instance, in South Africa, Cell C and MTN, the country's cheapest bundled products were 19 times higher than the cheapest product in the country. Conversely, Tanzania, Cameroon, and Namibia reflected a different pattern as the new bundled tariffs corresponded to the cheapest mobile prepaid product in these countries.

While in South Africa these tariffs sought to maximize profit, the introduction of bundles in other countries seemed to result in financial value for the customers who could benefit from a blend of voice calls, SMSs, and

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5. A flat price refers to a pricing structure that charges a single fixed fee for a service, regardless of usage.

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*Table 1. New Bundles in African Mobile Markets, First Quarter 2014.*

<b>Country</b>	<b>Operator</b>	<b>Product name</b>	<b>Bundle type</b>	<b>OECD basket price (in local currency<sup>a</sup>/US\$)</b>	<b>Cheapest product in the country (in local currency/US\$)</b>
Angola	Movicel	Movicel 2500	Voice, SMS, data	AOA 2,500.4 \$25.68	AOA 1,931.78 \$19.84
Egypt	Mobinil	Kalamngy All Day Long	Voice, SMS	EGP 89.9 \$13.01	EGP 19.22 \$2.77
	Etisalat	Get Smart Tariff	Voice, data	EGP 47.96 \$6.94	
	Vodafone Egypt	Vodafone Elsanawy	Voice	EGP 47.96 \$6.94	
Cameroon	Orange Cameroon	Plenty Fun 1000	Voice, SMS, data	XOF 19,047 \$8.40	XOF 19,047 \$8.40
Kenya	Orange Kenya	Holla	Voice, SMS	KES 300 \$3.52	KES 125.16 \$1.47
	Yu Kenya	Ongea Mob Jioni pack	Voice	KES 457.22 \$5.37	
	Airtel Kenya	Tosha 30	Voice, SMS	KES 204.17 \$2.39	
Tanzania	Airtel Tanzania	Yatosha weekly	Voice, SMS, data	TZS 10,230 \$6.40	TZS 10,230 \$6.40
		Yatosha Noma weekly Onnet flow	Voice, SMS, data	TZS 10,230 \$6.40	
	Benson	Monthly bundle	Voice, SMS	TZS 17,295.1 \$10.82	
	Tigo	Tigo Weekly package	Voice, SMS, data	TZS 10,246 \$6.41	
	Vodafone Tanzania	Cheka Bombastik	Voice, SMS, data	TZS 15,345 \$9.60	
	Zanzibar Telecom Limited	EPIQ 600	Voice, SMS	TZS 30,674 \$19.19	
Namibia	Telecom Mobile (ex-Leo)	TN Mobile 20	Voice, SMS, data	NAD 85.07 \$8.05	NAD 85.07 \$8.05
	MTC	Aweh	Voice, SMS, data	NAD 134.32 \$12.71	
Nigeria	Glo Mobile	Talk Free	Voice, SMS	NGN 999.74 \$6.12	NGN 733.47 \$4.49
South Africa	MTN SA	Sky Super	Voice, SMS, data	R 999. \$91.98	R 52.67 \$4.85
	Cell C	Infinity	Voice, SMS, data	R 999. \$91.98	

Source: RIA (2014a)

a. Historical exchange rates were used. Time range between January 1, 2014–March 31, 2014. Source: Oanda Historical Exchange Rates, available at <https://www.oanda.com/currency/historical-rates>.

Table 2. New MTN SA Sky Bundles.

MTN SA Sky bundle	Price (in ZAR <sup>a</sup> /US\$)	New promotional price (in ZAR/US\$)	Old inclusive data	New promotional inclusive data	Validity	Offer
MTN SA Sky Ultimate uncapped	R1,799 \$170.23	R1,599 \$151.31	Uncapped (*5GB)	Uncapped (*10GB)	30 days	Permanent
MTN SA Sky Super uncapped	R999 \$94.53	R899 \$85.07	Uncapped (*3GB)	Uncapped (*3GB)	15 days	Permanent
MTN SA Sky Super 1GB	R999 \$94.53	R899 \$85.07	Capped (1GB)	Capped (1GB)	30 days	Limited time offer
MTN SA Sky Absolute	R599 R56.68	R499 R47.22	Capped (2GB)	Capped (2GB)	7 days	Permanent

Source: MTN (2014)

a. South African Rand. Appears as R in Tables.

data at a contained price. In the case of Cameroon, the cheapest product on the market in Q1 2014 was the Plenty Fun 1000 time-based bundle, which significantly impacted its cheapest product pricing index moving the country up the index.

### The Case of South Africa: Lower Prices and Increased Complexity

In Q1 2014, the main innovation in terms of pricing in South Africa was the introduction of bundled prepaid packages in the market. Cell C and MTN SA were the only operators that introduced prepaid packages with voice, SMS, and data services by the end of March 2014. Vodacom SA offered bundled products only on contract or as an add-on voucher to prepaid packages. Cell C introduced the prepaid product Infinity valued at R999 (\$96.53). In this package, the customer received unlimited calls to any network, 1,000 free SMSs, and 1GB of data valid for 30 days. Unused services were not carried over to the next month. MTN SA introduced Sky bundles that offered unlimited calling to all networks, unlimited all-net SMSs, and capped or uncapped data that came with a fair use policy.<sup>6</sup> MTN SA Sky bundles were valid for seven days, 15 days, or 30 days. The cheapest package for 30 days was MTN SA Sky Super, wherein the user got 1GB of capped data use and unlimited all-net calls and SMSs. However, this package was a promotion and not a tariff lodged with the regulator. MTN SA Sky Ultimate was a permanent 30-day product and for R1,799 (US\$170.23) customers received uncapped Internet. After that, MTN SA introduced a promotional price cut on the Sky bundles, valid from April 25–July 31, 2014, as indicated in Table 2. This new promotional price represented the cheapest capped prepaid 30-day bundle package at R899 (US\$85.07) in the South African market. The promotional MTN Sky Ultimate tariff was also faster compared to the initial offer, wherein data bandwidth was slowed down only after the use of 3GB, 5GB, or 10GB depending on the bundle (Table 2).

Although an assessment of the literature on bundling indicates that new pricing strategies are normally introduced to retain customers and to compensate for the erosion of traditional voice and SMS revenues by IP-based services, mobile service providers have argued that the benefit to customers is mainly in having a bundled product serving their voice, SMS, and data needs. For instance, the dominant South African operator, MTN, pointed out on the launch of their bundled prices that new bundles increased customer choices and flexibility since bundles could be added to both prepaid and contract users' tariff plans (MTN, 2014).

Although the introduction of bundles has further fragmented mobile offerings, which are now difficult to compare in terms of cost for end users as they no longer know how much they pay for voice, SMS, and data separately, MTN SA also argued that the simplified monthly billing would help customers manage their cell phone expenditures (IT Web, 2014). At the time of this research, bundles in the South African market were

6. Fair use policy means that Internet speed will be throttled once the maximum data use of 3GB/10GB is reached.

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Table 3. Comparison of Second Call Termination Amendment Regulation Rates 2014 and Percentage Difference.

	MTR (in ZAR/US\$)	MTR for operators with less than 20% market share (in ZAR/US\$)	% Difference
Previous rate	R0.40 US\$0.038	R0.40 US\$0.038	0%
April 1, 2014	R0.20 US\$0.02	R0.44 US\$0.042	55%
April 1, 2015	R0.15 US\$0.01	R0.42 US\$0.04	64%
April 1, 2016	R0.10 US\$0.009	R0.40 US\$0.038	75%
April 1, 2017	R0.20 US\$0.02		

Source: ICASA (2014).

also significantly more expensive than the cheapest mobile voice prepaid product, while in other African markets such as Tanzania, Cameroon, and Namibia the new bundle tariffs corresponded to the cheapest mobile prepaid product in these countries. Nevertheless, the justification for these products, by Cell C in particular, has been the provision of affordable and value-for-money products (Cell C, 2014a).

### **Significant Price Reductions After ICASA's Amendment of MTR**

In March 2014, the new three-year glide path for a reduction in the MTR was introduced by Independent Communications Authority of South Africa (ICASA),<sup>7</sup> setting the rate for operators at R0.20 (US\$0.02) on April 1, 2014. The amended regulations stated that in April 2015 the rate would further decrease to R0.15 (US\$0.01) and it would culminate in an MTR of R0.10 (US\$0.009) by April 1, 2016. However, operators with less than 20% market share (i.e., Cell C and Telkom Mobile) would enjoy a considerable asymmetry in the rate, with the two dominant operators paying R0.44 (US\$0.042) in 2014, R0.42 (US\$0.04) in 2015, R0.40 (US\$0.038) in 2016, and R0.20 (US\$0.02) in 2017 to the smaller players.<sup>8</sup>

The intention of the termination rate regulations is to enable competitive pressure by allowing smaller players to charge lower voice prices than their larger competitors. While there were no price changes in Q1 2014, the following quarter saw prepaid price reductions from operators awaiting the outcome on termination rates. Operators launched promotional tariffs and products, pending a finalization by the regulator, with the intention to make them permanent call rates. MTN SA was the first dominant operator to introduce a new tariff: MTN SA Pay-per-Second, with a reduced flat rate of R0.79 (US\$0.075). It was initially launched as a promotional tariff, but MTN SA has since lodged the price with ICASA to make it a permanent call rate.

Following MTN SA's price reduction, Vodacom SA and Cell C responded with price reductions of their own. As previously observed in the mobile market (RIA, 2013), Vodacom SA replicated MTN SA's new tariff by introducing a R0.79 (US\$0.075) promotional tariff from May 1–July 14, 2014. The new tariff Vodacom SA required customers to prepay R0.79 (US\$0.075) per minute billed per second. However, this product comes with stringent terms of use, which include, among others, disallowing customers to migrate back to original price plans and to make use of other promotions such as Power Hour, Chat for 20, or Power Bundles (Vodacom SA, 2014b).

7. The MTR rate in Table 3 is per the gazetted Second Call Termination Regulation Rates 2014.

8. The full glide path did not come into effect at the end of March as planned after MTN SA and Vodacom SA filed for an urgent interdict to stop ICASA implementing the regulation on the grounds that ICASA had not undertaken the necessary cost studies to ascertain the operators' costs. Following the withdrawal of the regulations and the reissuing of new regulations, the South Gauteng High Court found that the cost study had not been adequately undertaken and suspended the introduction of the regulation for six months for this to be done. Until then, the March 2014 mobile termination rate would apply with its associated asymmetry (RIA, 2014c).

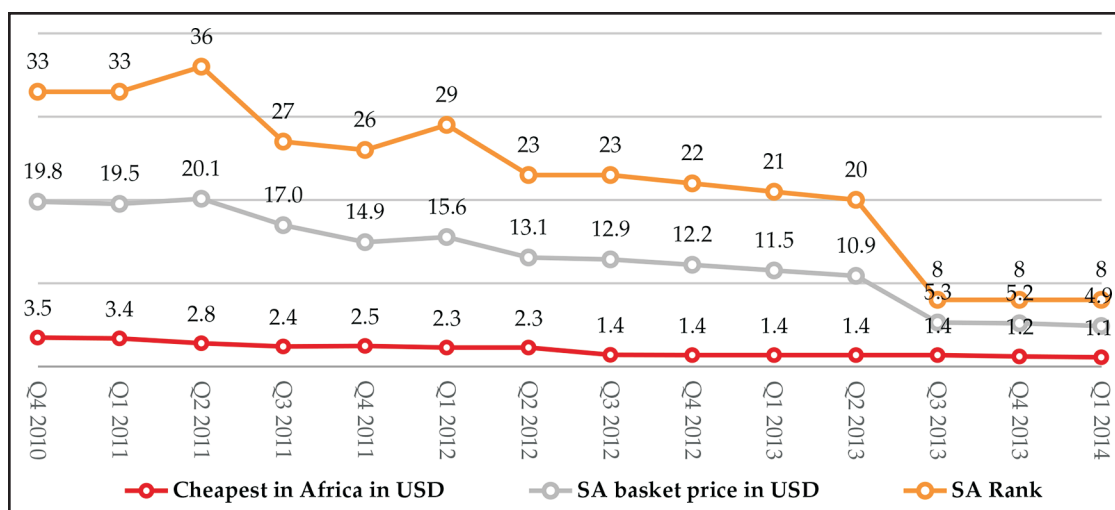


Figure 1. Ranking and cost of cheapest prepaid mobile product available in South Africa and in Africa for OECD 40 calls/60 SMSs basket.

Cell C did not cut tariffs immediately, but did introduce four promotional Supacharge vouchers (Cell C, 2014b). The new vouchers come with double the bonus and value that could be used for on-net calls, SMSs, and data at the customer’s discretion, with a time validity of two to seven days. It is only after Vodacom SA announced its tariff changes that Cell C launched a new prepaid call flat tariff at R0.66 (US\$0.062) per minute and R0.79 (US\$0.075) per minute for contract customers. This tariff was the lowest prepaid package flat tariff available in the South African market at the beginning of Q2 2014, maintaining the operator’s position as the champion of the people in terms of mobile voice prepaid prices. The rate was promotional, depending on the outcome of the MTR review (Cell C, 2014b).

### South Africa’s Rank in the RIA Price Transparency Index

Although the cheapest South African operator’s basket price continued to drop from US\$5.20 (R54.95) in Q4 2013 to US\$4.90 (R51.78) in Q1 2014, compared to other African countries, the basket did not change in real value.<sup>9</sup> This price was 4.4 times more expensive than the cheapest product in Africa and 1.7 times more expensive than the cheapest product available from a dominant operator in Africa (Vodafone Egypt and Zain Sudan had a basket price of US\$2.80 (R29.59); see Table 4 or Figure 1).

Figure 1 compares the cost in US\$ of the cheapest prepaid mobile product available in South Africa and in all of Africa for the OECD (2010) 40 calls/60 SMSs basket between Q4 2010 and Q1 2014.

South Africa’s cheapest product’s rank in the RIA price transparency index<sup>10</sup> improved from 20th in Q2 2013 to eighth in Q3 2013. This position was maintained until Q1 2014. The ranking of South Africa for the cheapest product from a dominant operator in Q1 2014 was 18th (see Table 4).

Figure 2 shows a cost comparison of the cheapest prepaid mobile products for each mobile operator in South Africa, according to the OECD (2010) basket from Q4 2010 to the Q2 2014 interim results. Telkom Mobile maintained the cheapest product in the market by the end of Q1 2014. Its Sim SONKE product price remained at only R0.29 (US\$0.03) per minute for on-net and R0.75 (US\$0.07) per minute for off-net calls (including calls to fixed lines). This promotion was followed by Cell C, which offered a flat rate of R0.99 (US\$0.09) a minute. Both MTN SA and Vodacom SA were still the most expensive operators in terms of mobile prepaid voice tariffs, with a R0.02 (US\$0.002) per-second tariff (R1.20 per minute or US\$0.11 per minute) at

9. The reduction is affected by the US\$–ZAR exchange rate that increased from 10.14 in Q4 2013 to 10.86 in Q1 2014. This translates to a cost reduction for the OECD basket in US\$.

10. The RIA price transparency index is available at [http://www.researchictafrica.net/prices/Fair\\_Mobile.php](http://www.researchictafrica.net/prices/Fair_Mobile.php)



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*Table 4. Cost and Rank of OECD Mobile Baskets, 2010 Definition, 40 Calls (in local currencies and US\$).*

Country name	Cheapest product (in ZAR and US\$)				% cheaper than dominant
	Dominant operator		Cheapest in country		
	Cost	Rank	Cost	Rank	
Egypt	US\$2.77 EGP 19.014	1	US\$2.77 EGP19.014	4	Dominant is the cheapest
Sudan	US\$2.83 SDG16	2	US\$1.06 SDG5.99	1	62.5%
Ghana	US\$3.38 GHS9.09	3	US\$2.64 GHS7.10	3	21.9%
Mauritius	US\$3.69 MUR107.41	4	US\$3.69 MUR107.41	5	Dominant is the cheapest
Ethiopia	US\$3.98 ETB76.31	5	US\$3.98 ETB76.31	6	Dominant is the cheapest
Kenya	US\$4.27 KES363.12	6	US\$1.47 KES125.00	2	66%
Rwanda	US\$5.06 RWF3,386.78	7	US\$5.06 RWF3,386.78	9	Dominant is the cheapest
Tunisia	US\$6.30 TND9.94	8	US\$6.10 TND9.62	11	3.2%
Algeria	US\$6.43 DZD502.30	9	US\$6.43 DZD502.30	14	Dominant is the cheapest
Libya	US\$6.91 LYD8.45	10	US\$6.91 LYD8.45	15	Dominant is the cheapest
Nigeria	US\$7.11 NGN1,161.47	11	US\$4.49 NGN733.47	7	37%
Uganda	US\$8.53 UGX21,463.440	12	US\$7.10 UGX17,865.230	16	17%
Namibia	US\$9.21 NAD97.33	13	US\$8.05 NAD85.07	17	13%
Sierra Leone	US\$9.33 SLL40,025.7	14	US\$9.33 SLL40,025.70	20	Dominant is the cheapest
Tanzania	US\$9.60 TZS15,345.02	15	US\$6.40 TZS10,230	13	33.3%
Mozambique	US\$10.01 MZN311.21	16	US\$10.0 MZN311.21	22	Dominant is the cheapest
Botswana	US\$10.99 BWP95.18	17	US\$10.0 BWP86.608	21	8.9%
South Africa	US\$11.26 R118.99	18	US\$4.85 R51.254	8	56.9%
Benin	US\$11.59 XOF5,519.08	19	US\$11.5 XOF5,519.08	23	Dominant is the cheapest

Source: RIA (2014).



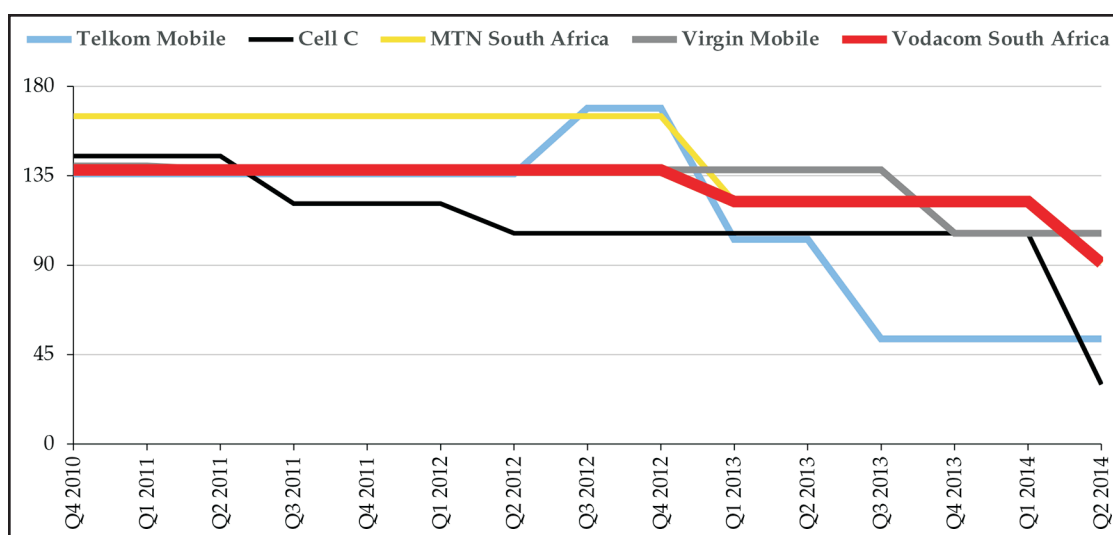


Figure 2. Cost of cheapest prepaid mobile product for OECD (2010) 40 calls/60 SMSs basket by operators (in ZAR). Source: RIA (2014a).

the end of Q1 2014. The new call rates in Q2 2014 showed a downward shift in pricing, with MTN SA and Vodacom SA offering the cheapest flat tariffs at R0.79 (US\$0.07) and Cell C at R0.66 (US\$0.06). Telkom Mobile did not introduce a prepaid tariff, maintaining its cheapest on-net rate.

## Financial Performance of South African Mobile Operators

### MTN SA

Compared to its direct competitor, Vodacom SA, MTN SA underperformed in FY<sup>11</sup> 2013. Total revenue declined by 6.1%, mainly a result of lower outgoing voice revenue, which declined by 8.3% and a significant 40% decline in SMS revenue, which was eroded by the increasing number of IP-based instant messaging and social media users. The decline in revenue decreased the EBITDA<sup>12</sup> margin by 0.3%. Revenue contraction also resulted in a lower CAPEX<sup>13</sup> in 2013, which decreased from R6,416 million (US\$607 million) to R5,835 million (US\$552 million). Combined with an increase in the total number of MTN SA subscribers, CAPEX per-subscriber income declined from R253 (US\$23.94) to R227 (US\$21.48).

Data revenue, however, including MTN SA Business, increased by 20.2% to R8,822 million (US\$834.79 million) and contributed 22.2% to total revenue. This significant growth is the result of increased 3G coverage, 9.7 million 3G devices, including 7.3 million smartphones on MTN SA's network, which increased by 32.6% over 2012 and the launch of competitive data bundles. Figure 3 depicts the breakdown of data revenue by services and shows that Internet traffic is the main source of revenue for the data market.

To benefit from a significant increase in data users and data revenue, in Q1 2014 MTN SA launched a new range of bundled products, which included data (capped or uncapped), free voice, and SMS services. These tariffs, however, were not pro-poor because of the high once-off payment to access unlimited or high volumes of data and unlimited all-net calls and SMSs.

Prepaid subscribers declined by 1.1%. Conversely, the more lucrative postpaid segment performed better and increased its subscriber base by 11.3%. MTN SA also recorded an increase in the number of upgrades to higher tariff plans. However, in FY2013, prepaid/postpaid ARPU decreased by R9 (US\$0.85), while the MoU

11. FY = Financial Year

12. EBITDA = Earnings before interest, taxes, depreciation, and amortization

13. CAPEX = capital expenditure

Table 5. MTN SA South Africa Revenue for Fiscal Year Ending December 2013, in Rand and US\$.

Financial indicator		2010	2011	2012	2013
Subscribers (SIMS, <sup>a</sup> in millions)	Prepaid	15.5	18.20	20.90	20.70
	Postpaid	3.4	3.8	4.50	5.00
	Total	18.8	22	25.4	25.7
ARPU <sup>b</sup>	Prepaid	R112 US\$10.6	R106 US\$10.03	R95 US\$8.99	R86 US\$8.14
	Postpaid	R329 US\$31.13	R273 US\$25.83	R237 US\$22.43	R225 US\$21.3
	Blended	R152 US\$14.38	R134 US\$12.68	R122 US\$11.54	R113 US\$10.69
MoU <sup>c</sup>	Outgoing	71	69	70	71
	Implied minute prices ARPU/MoU <sup>d</sup>	R2.14 US\$0.2	R1.94 US\$0.18	R1.74 US\$0.16	R1.59 US\$0.15
Capital expenditures (in millions)	Total expenditures (in millions)	R3,908 US\$369.80	R4,105 US\$388.44	\$6,416 US\$607.12	R5,835 US\$552.14
	% of revenue	10.9%	10.6%	15.5%	14.7%
	Expenditures per subscriber	R208 US\$19.68	R187 US\$17.69	R253 US\$29.94	R227 US\$21.48
Revenues (in millions)	Total	R35,822 US\$3,389.70	R38,597 US\$3,652.29	R41,349 US\$3,912.7	R39,708 US\$3,757.42
	Voice (outgoing)				R19,327 US\$1,828.84
	Voice (incoming)				R3,698 US\$349.93
	Data	R3,638 US\$344.25	R4,646 US\$439.63	R6,409 US\$606.46	R8,822 US\$834.79
	SMS	R2,490 US\$235.62	R2,641 US\$278.3	R4,176 US\$395.16	R2,477 US\$234.39
	Devices				R4,902 US\$463.85
	Other				R481 US\$45.52
EBITDA (in millions)	(in millions)	R12,188 US\$1,153.3	R13,591 US\$1,286.06	R14,476 US\$1,369.80	R13,425 US\$1,270.36
	Margin	34.1%	35.2%	35.2%	33.8%
	EBITDA/subscriber	R648.3 US\$61.35	R617.8 US\$58.46	R569.9 US\$53.93	R522.4 US\$49.43
Interconnections (in millions)	Interconnection revenue	R6,568 US\$621.5	R5,924 US\$560.6		
	Interconnection and roaming expenses	R5,483 US\$518.8	R5,183 US\$490.4		
	Net cash flow from interconnection including roaming	R1,085 US\$102.67	R741 US\$70.12		
	Net interconnect revenue	R1,481 US\$140.14	R1,182 US\$111.848		

Source: MTN SA annual reports (2010, 2011, 2012, 2013).

a. Number of SIM cards active in the last three months before the analysis was conducted.

b. Average revenue per use.

c. Minutes of use.

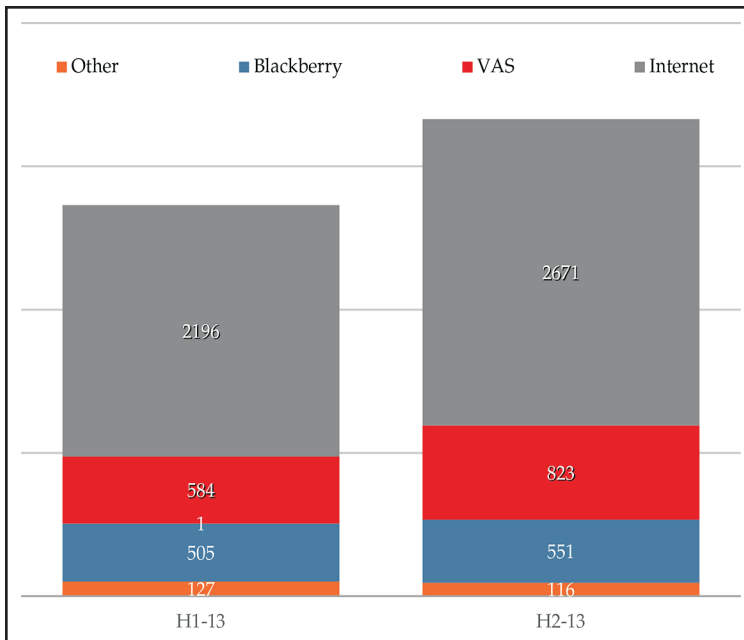


Figure 3. Data Revenue Breakdown (in ZAR millions). VAS = Value Added Service. H1-13 = first semester 2013; H2-13 = second semester 2013.

Source: MTN (2014).

was relatively stable at 71 minutes per subscriber. On a positive note, the implied minute prices (ARPU/MoU) also decreased, from R1.74 (US\$0.16) in 2012 to R1.59 (US\$0.15) in 2013. This estimate for MTN SA is based only on blended ARPUs because MTN SA does not report prepaid and post-paid MoU separately.

MTN SA stopped reporting interconnection revenues and expenses in 2012. However, the 2013 financial report mentions a 24.9% decline in interconnect revenue due to the implementation of the MTR cut. Without detailed reporting, particularly reduced interconnection charges, it is impossible to determine the net effect of termination rate reductions. The same report states that MTR reductions resulted in higher off-net traffic.

### Vodacom SA

Vodacom South Africa’s performance has been satisfactory in the quarter update ending December 2013. Although Vodacom SA registered a decline in interconnection revenue by 24.1% in Q4 2013, overall revenue increased by 6.6%. This result was partially ascribed to a 26.9% growth in equipment revenue, which represented 21.6% of total revenue. Service revenues grew for the third consecutive quarter by 0.6% to R12,587 million (US\$1,191.06 million) due to growth in data revenue. Data revenue grew significantly—by 31.2%—accounting for 23.6% of service revenue. On the other hand, and similar to MTN SA, mobile messaging revenue and voice revenue decreased, respectively, by 16.3% and 3.7%, showing that in the South African telecommunications market a growing number of users were replacing expensive voice services with cheaper IP-based services, such as social media and instant messaging. Conversely, prepaid customer revenues grew by 6.8%.

The number of active customers increased in both prepaid and postpaid markets as did the traffic in terms of outgoing minutes. Total active<sup>14</sup> SIM card numbers increased by 5.1% between December 2012–December 2013.

Vodacom SA’s ARPU decreased mainly due to a reduction of postpaid ARPU. Contract MoU similarly decreased by 4.2% between December 2012–December 2013. Overall, implied minute prices decreased, and prepaid implied minute prices (R0.71 or US\$0.07) were considerably lower than contract implied minute prices (R2.15 or US\$0.2). This indicates that Vodacom SA’s price structure may reflect the purchasing power of South African mobile users: Those who prefer prepaid options have irregular or lower incomes, while those on contract have regular or higher incomes.

### Telkom Mobile

Telkom Mobile subscribers, for the six months ending September 2013, increased 6.9% compared to September 2012, from 1,495,000 to 1,598,000. This growth was due to a 14.4% increase in prepaid customers.

14. These are SIMS that customers have used on the operator’s services in the past three months.

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Table 6. 2012 and 2013 Vodacom SA South Africa Financials and Key Performance Indicators (Quarterly Update December 2013 (in ZAR and US)).

Financial indicator		Dec 2013	Dec 2012	Year-on-Year % change
Revenue in millions	Mobile contract	R5,336 US\$504.93	R5,341.3 US\$505.43	-0.1
	Mobile prepaid	R5,444 US\$515.14	R5,097.4 US\$482.35	+6.8
	Mobile interconnect	R999 US\$94.53	R1,316.2 US\$124.55	-24.1
	Equipment	R3,562 US\$337.06	R2,806.9 US\$265.61	+26.9
	Mobile voice	R7,296 US\$595.77	R7,576.3 US\$716.92	-3.7
	Mobile messaging	R650 US\$61.51	R776.6 US\$73.49	-16.3
	Mobile data	R2,967 US\$280.76	R2,261.4 US\$213.99	+31.2
	Total revenue	R16,502 US\$1,561.52	R15,480.3 US\$1,464.84	+6.6
Active customers (in millions)	Total	30.9	29.4	5.1
	Prepaid	26.1	24.7	5.7
	Contract	4.8	4.7	1.7
Traffic (in millions of minutes)	11,298	9,631	17.3	
Monthly MoU	All	124	109	13.8
	Prepaid	113	93	21.5
	Contract	183	191	-4.2
Monthly ARPU	All	R129 US\$12.21	R133 US\$12.59	-3.0
	Prepaid	R80 US\$7.57	R80 US\$7.57	0.0
	Contract	R393 US\$37.19	R409 US\$38.70	-3.9
Implied minute prices	All	R1.04 US\$0.1	R1.22 US\$0.12	-0.1
	Prepaid	R0.71 US\$0.08	R0.86 US\$0.08	-0.2
	Contract	R2.15 US\$0.2	R2.14 US\$0.21	0.0

Source: Vodacom (2014a).

Conversely, postpaid customers decreased by 15.7%. The prepaid ARPU similarly increased by 24.4%, from R23.12 (US\$2.19) in September 2012 to R28.75 (US\$2.72) in September 2013, with a blended ARPU of R58.81 (US\$5.56). Mobile revenues increased 55.4% to R926 million (US\$87.62 million), boosted in particular by data and mobile handset revenues, which grew, respectively, by 365% and 50%. On the other hand, mobile voice and subscription revenues decreased by 20.2%.

Table 7. 2012 and 2013 Telkom Mobile Financials and Key Performance Indicators (Quarterly Update December 2013).

Financial indicator		Sept 2012	Sept 2013
Active subscribers in thousands	All	1,495.1	1,598.2
	Prepaid	1,122	1,283.6
	Postpaid	373.1	314.6
ARPU	Blended	R67.16 US\$6.36	R58.8 US\$5.56
	Prepaid	R23.12 US\$2.19	R28.8 US\$2.73
	Postpaid	R164.68 US\$15.58	R156.6 US\$14.82
Revenues in millions	Mobile voice and subscription	R282 US\$26.68	R225 US\$21.29
	Mobile interconnection	R37 US\$3.5	R33 US\$3.12
	Data	R202 US\$19.11	R303 US\$28.67
	Mobile handset sales	R75 US\$7.1	R365 US\$34.54
	Total operating revenue	R596 US\$56.4	R926 US\$87.62

Source: Telkom Interim Results September 2013.

### Cell C

Cell C, although not listed on the Johannesburg Stock Exchange, released a statement on its financial performance, showing growth in 2013 and the first five months of 2014 (Cell C, 2014c). Cell C's subscriber base increased by 35% year-on-year by the end of 2013, meaning an addition of 3.5 million to the customer base. At the end of the year, Cell C had 13.6 million customers. This growth translated into a revenue increase of 14% year-on-year. The prepaid market primarily drove this growth in subscribers as it was up 40%, and prepaid customer spending increased 31% year-on-year. However, Cell C provided no breakdown on voice, SMS, or data spending. By the end of April 2014, Cell C had further increased its customer base to 16.6 million subscribers. Broadband subscribers grew by 55%, following a similar trend for Vodacom SA and MTN SA, but of a greater scope compared to the dominant operators, thus highlighting the importance of data services as a growth area for South African mobile operators. To boost their growth, Cell C intends to spend R2.3 billion in CAPEX for 2014.

### Discussion

The analysis of voice tariffs for Q1 of 2014 revealed a trend in African telecommunications markets toward the introduction of bundled offerings and significant reductions in mobile prepaid voice tariffs, the result of regulatory interventions such as a reduction in MTR in the South African case.

Vertically integrated operators (which cover the entire mobile value chain, from wholesale, Internet access, and voice/SMS to equipment and apps) offer bundles of services that include capped or uncapped data and a limited or unlimited number of minutes for voice calls and SMSs.

Across African markets, eight countries introduced prepaid bundled services by Q1 2014. Among them, bundles in Tanzania, Namibia, and Cameroon had the cheapest offerings in the mobile prepaid markets, according to the OECD (2010) basket definition adopted for the Index.

In South Africa, only MTN SA and Cell C introduced prepaid bundles. By the end of Q1 2014 the cheaper

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bundles for both operators cost R999 (US\$94.53) and included 1GB of data, unlimited calls, unlimited SMS for MTN SA customers, and 1,000 free SMSs for Cell C customers. Vodacom SA introduced similar packages for contract customers only. Although these tariffs offered free calls, they were still expensive for low-income users who could not afford a high one-off payment to acquire these bundles.

Significant changes in prices were observed in the weeks following the South Gauteng High Court ruling<sup>15</sup> which enforced the new 2014 MTR regulation in South Africa for the six months that ICASA was given to conduct the necessary costing study to adjust the rates. MTN SA and Vodacom SA introduced a prepaid calling rate of R0.79 (US\$0.07). It was introduced as a flat rate across time and networks. In the case of Vodacom SA, the new pricing package came with stringent terms and conditions of use. Cell C introduced a new prepaid calling tariff of R0.66 (US\$0.06), which went into effect on June 1, 2014, making it the cheapest flat calling rate in interim results for Q2 2014. Except for MTN SA, all the new tariffs were launched as promotional options, pending the outcome of ICASA's costing study.

From a financial analysis perspective, the launch of bundled tariffs resulted from an increasing use of IP-based services by mobile Internet users, which eroded voice and SMS revenues of the South African operators. Conversely, an analysis of the operators' financial performance has shown that data and equipment revenues were growing steadily in the financial year just before the launch of the new bundled tariffs.

### Policy Recommendations

The new tariff structures offered by African operators mask the true cost of communications. In particular, the opacity of the new bundled tariffs does not allow consumers to compare tariffs. Increasing price transparency is essential, both for making price competition possible and for proper regulatory responses.

This study reveals that forbearance of tariff regulations by most telecommunication regulators should be supplemented with the creation of new price baskets that reflect the usage of a baseline consumer to assess the bundled tariffs of an operator and across operators. To capture the changing nature of mobile pricing structures in South Africa and other African markets, regulators will need additional indicators from the operators to calculate price baskets. As indicated in this study, data traffic is the main source of growth for mobile operators, but new pricing strategies make it difficult to determine the real cost of mobile services to end users. It is recommended that the regulators require new financial indicators that include, at the very least, quarterly prepaid and postpaid data and voice/SMS ARPU, prepaid and postpaid MoU, and traffic data. In this way, it would be possible to construct new mobile services baskets based on actual use of voice and data services, therefore increasing price transparency and developing new forms of tariff regulation, if market forces do not push down mobile tariffs over time.

In addition, due to the introduction of bundled services and a steady decrease in voice services, assessing the cost of communications will require the development of new price baskets that would include not only voice and SMS, but also data prices. The new bundle basket should add the value of bundled voice minutes, SMSs, and data and divide it by the price. The value of voice, SMS, and data should be estimated by multiplying the amount offered in the bundle by a specific factor. ■

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<sup>15</sup>. See footnote 12.

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